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GLÆOSPORIUM NERVISEQUUM, (FCKL.) SACC.

By E. A. SOUTHWORTH.

The sycamore blight caused by the fungus *Glæosporium nervisequum* has been very abundant in various parts of the country for the past few years. In some cases trees have been killed outright by the disease and in many the growth of the early part of the year has been completely destroyed. The sycamore is extensively planted as a shade tree, and its wood is used almost exclusively for making tobacco boxes. It is stated that one mill on the Embarras River in southern Illinois has within a few months received orders for 11,000,000 feet of sycamore lumber, and that other mills throughout that region are busy sawing up the great trees. If this demand continues it will soon be necessary to take some steps to keep up the sycamore supply, but when the trees are attacked each year with a destructive disease their existence is seriously threatened. Effects of the disease are so prominent that during and soon after its active season trees which have been affected can be readily distinguished for a long distance. Fortunately for the trees, the disease continues active only a small portion of the year, and during the greater part of the summer they have a chance to partially recover from the disastrous effects of the attack. But even under these favorable circumstances, it is evident that the growth is greatly retarded. Last spring the disease attacked full-grown and young leaves, mostly near the ends of branches. Sometimes the young un-lignified stem was attacked at some distance from the end, and then, of course, all the leaves beyond this point would wilt, although no fungus could be discovered on them. The petioles were very commonly attacked. The trees thus diseased had a scorched and wilted appearance.

This spring the attack in Washington was quite different. Comparatively few full-grown leaves were affected, but the external leaves of the unfolding buds showed the disease as soon as they were half out, and many entire buds died before they were fairly open. In other cases the

inner leaves grew out without showing any traces of the disease. In fact, nearly every stage was present between buds which were quite dead before winter was over and buds which opened in a healthy and natural manner. The general impression gained from an examination of the trees when the first leaves were about half grown was that the buds must have been infected in some cases by spores which had lodged on them before they started to grow, and that in others the mycelium must have entered them from the branch. Those buds of which only the outer leaves were affected belong to the former class, and those which shriveled up because the axis that was still in a meristematic condition was attacked, belong to the latter. This is, however, merely a surmise, for it is quite possible that this case was simply caused by spores which had been washed by the rains further into the folds of the buds, and were consequently in a position where their germ tubes could penetrate the axis itself, and the mycelium produced from them enter the woody portions through the more delicate tissues of the bud. One thing, however, seems evident, this attack, which showed itself so early in the spring, can not be due to the same infection which now produces the characteristic spots of *Glæosporium nervisequum* along the veins of some of the full-grown leaves. The disease is very scarce in Washington at present, but in other parts of the country the same state of affairs exists that existed here last spring. The leaves are for the great part diseased, some showing large brown patches, others withered from the effects of a diseased petiole or growing branch, and the ground is covered under the trees by leaves which have fallen from the effects of the fungus at the base of the petiole.

The existence of large numbers of dead twigs on the trees at the time the blight is most active, and the appearance of other leaf fungi after the *Glæosporium* has ceased its attacks, raise the question at once whether some of these do not have some connection with the leaf blight. I have studied the question for some time, but all my experiments have produced merely negative results.

The following paper by Franz von Tavel contains descriptions of some of the most prevalent and important of these forms, together with detailed accounts of his experiments made with a view of determining their life history. It probably represents our best knowledge of the subject. The paper was published in German in the *Botanische Zeitung* for 1886; only a portion is printed in this number of the Journal, but the remainder will appear in succeeding numbers.